

# PATENT COOPERATION TREATY

# PCT

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference 19881	<b>FOR FURTHER ACTION</b>		See item 4 below
International application No. PCT/JP2005/011247	International filing date ( <i>day/month/year</i> ) 20 June 2005 (20.06.2005)	Priority date ( <i>day/month/year</i> ) 14 July 2004 (14.07.2004)	
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237			
Applicant NOK CORPORATION			

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).
2. This REPORT consists of a total of 6 sheets, including this cover sheet.

In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

- |                                     |              |   |
|-------------------------------------|--------------|---|
| <input checked="" type="checkbox"/> | Box No. I    | Basis of the report   |
| <input type="checkbox"/>            | Box No. II   | Priority  |
| <input type="checkbox"/>            | Box No. III  | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability  |
| <input type="checkbox"/>            | Box No. IV   | Lack of unity of invention  |
| <input checked="" type="checkbox"/> | Box No. V    | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/>            | Box No. VI   | Certain documents cited   |
| <input type="checkbox"/>            | Box No. VII  | Certain defects in the international application  |
| <input checked="" type="checkbox"/> | Box No. VIII | Certain observations on the international application   |

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis.2).

	Date of issuance of this report 16 January 2007 (16.01.2007)
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**PATENT COOPERATION TREATY**

From the  
INTERNATIONAL SEARCHING AUTHORITY

To:

**PCT**

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

(PCT Rule 43bis.1)

		Date of mailing (day/month/year)
Applicant's or agent's file reference <b>19881</b>		<b>FOR FURTHER ACTION</b> See paragraph 2 below
International application No. <b>PCT/JP2005/011247</b>	International filing date (day/month/year) <b>20.06.2005</b>	Priority date (day/month/year) <b>14.07.2004</b>
International Patent Classification (IPC) or both national classification and IPC		
Applicant <b>NOK CORPORATION</b>		

1. This opinion contains indications relating to the following items:
- Box No. I Basis of the opinion
  - Box No. II Priority
  - Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
  - Box No. IV Lack of unity of invention
  - Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
  - Box No. VI Certain documents cited
  - Box No. VII Certain defects in the international application
  - Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/JP	Authorized officer
Facsimile No.	Telephone No.

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

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Box No. I Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

This opinion has been established on the basis of a translation from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (under Rule 12.3 and 23.1(b)).
2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. type of material

a sequence listing  
 table(s) related to the sequence listing
  - b. format of material

in written format  
 in computer readable form
  - c. time of filing/furnishing

contained in the international application as filed.  
 filed together with the international application in computer readable form.  
 furnished subsequently to this Authority for the purposes of search.
3.  In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

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INTERNATIONAL SEARCHING AUTHORITY**

International application No.	PCT/JP2005/011247
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Box No. V	Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
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**1. Statement**

Novelty (N)	Claims <u>1-13</u>	YES
	Claims _____	NO
Inventive step (IS)	Claims _____	YES
	Claims <u>1-13</u>	NO
Industrial applicability (IA)	Claims <u>1-13</u>	YES
	Claims _____	NO

**2. Citations and explanations:**

**1. Documents**

Following documents are cited in the ISR:

Document 1: JP, 63-112617, A (Sumitomo Chemical Co., Ltd.), 17 May, 1988 (17.05.88)

Document 2: JP, 11-166078, A (Bando Chemical Industries, Ltd.)

Document 3: JP, 2000-143894, A (NOK Megurasutikku Kabushiki Kaisha)

Document 4: JP, 61-1711750, A (Sumitomo Chemical Co., Ltd.), 02 August, 1986 (02.08.86)

**2. Novelty**

The “flexibilizer” described in document 1 corresponds to the “plasticizer” described in claim 1 of the subject application. The blending quantity of the flexibilizer is not described in document 1.

The “organic peroxide” described in claim 1 of the subject application is not described in document 2.

The “ethylene/alkyl acrylate copolymer rubber containing aminc-vulcanizable groups” described in claim 1 of the subject application is not described in document 3.

The “organic peroxide” described in claim 1 of the subject application is not described in document 4.

Therefore, the subject matter of claim 1 of the subject application is not described in any of the documents 1, 2, 3 or 4. The subject matters of claims 2-13 described by citing the description of claim 1 are not described in any of the documents 1, 2, 3 or 4 either.

Therefore, the subject matters of claims 1-13 appear to be novel.

**3. Inventive steps**

**(1) Claims 1-6**

(i) Document 1 does not describe the blending quantity of the flexibilizer. This “flexibilizer” is a synonym for “plasticizer”, and document 2 describes a technique of blending 0-20 parts by weight of a plasticizer to 10 parts by weight of the ternary copolymer which corresponds to composition (A) of the invention described in document 1. Further, this range of the quantity corresponds to the range described in claim 1 of the subject application (see claims, paragraphs [0011] and [0021] and table 1 of document 2).

In the invention described in document 1, a person skilled in the art could have easily conceived of choosing the quantity of the flexibilizer described in claim 1 referring to the quantity described in document 2.

(ii) Document 1 does not describe the EPDM.

However, document 3 describes a technique for adding 5-35 parts by weight of EPDM to 100 parts by weight of ethylene/alkyl acrylate copolymer rubber in order to improve the formability

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Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

of the rubber (see claims, embodiments 1 and 2 and comparative examples 2, 3 and 8 of document 3).

A person skilled in the art could have easily conceived of adding a similar quantity of EPDM as that described in document 3 for improving the formability of the rubber composition described in document 1.

(2) Claim 7

Document 1 does not describe the technique of adding a sulphur compound vulcanizing agent. However, document 4 describes the technique of using polyfunctional organic amine and sulphur together as a vulcanizing agent for a copolymer of acrylic ester or methacrylate ester and unsaturated glycidyl ester in order to obtain a crosslinked rubber which has a better properties than in the case where only the polyfunctional organic amine is used (see claims, embodiments and comparative examples 1 and 3 of document 4).

Therefore, a person skilled in the art could have easily conceived of adding a sulphur compound vulcanizing agent such as that of sulphur to compound (B) chosen from the amine etc. described in document 1.

(3) Claims 8 and 9

Document 1 does not describe the technique of adding an  $\alpha$ -olefin oligomer. However, waxes which are  $\alpha$ -olefin oligomers are common as the flexibilizer as described in document 1. So, a person skilled in the art could have easily conceived of using this.

(4) Claims 10-13

Document 1 does not describe rubber components described in claims 10-13. However, a person skilled in the art could have easily conceived of selecting the rubber components described in claims 10-13 from the components of "automobile, machine" etc. described in the prior art description of document 1.

Therefore, the subject matters of claims 1-13 do not appear to involve an inventive step.

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Box No. VIII      Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

The chemical structure corresponding to the "amine-vulcanizable groups" described in claim 1 is not clear.

To which element the " $\alpha$ -olefin oligomer" described in claim 8 refers is not clear.